



## Management to mitigate and adapt to climate change

---

**Author(s):** Lal R, Delgado JA, Groffman PM, Millar N, Dell C, Rotz A  
**Year:** 2011  
**Journal:** Journal of Soil and Water Conservation. 66 (4): 276-285

---

### Abstract:

Management decisions both at the field and off-site have the potential to contribute to climate change mitigation and adaptation. Climate change threatens to increase the potential for soil erosion, reduce soil quality, lower agricultural productivity and negatively impact food security and global sustainability, making it one of the most severe challenges we will face in the 21st century. This paper looks at the potential of management to help us, not only mitigate climate change, but also to help us adapt to a changing climate. Different aspects of carbon management, nitrogen management, manure management, management in low-input systems (sustainable agriculture), and grazing land management are discussed as examples. Management decisions regarding conservation practices, such as no-till, conservation agriculture, and returning crop residue to the field to increase nutrient cycling, can contribute to carbon sequestration and help us mitigate and adapt to climate change. Additionally, management of grasslands, restoration of degraded/desertified lands, nitrogen management to reduce greenhouse gas emissions, precision conservation management at a field and/or watershed level, and other management alternatives can also help us mitigate and/or adapt to climate change. Management for climate change mitigation and adaptation is key for environmental conservation, sustainability of cropping systems, soil and water quality and food security. This paper suggests, based on a review of the literature, that management decisions that reduce soil erosion, increase carbon sequestration to improve soil functions, soil quality, and soil health, and contribute to the resilience of soils and cropping systems will be needed to respond to climate change and related challenges such as food security. Our review suggests that without management decisions that increase soil and water conservation, food security for the world's growing population will be harder to achieve.

**Source:** <http://dx.doi.org/10.2489/jswc.66.4.276>

### Resource Description

#### Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

#### Communication Audience:

audience to whom the resource is directed

Public, Researcher

# Climate Change and Human Health Literature Portal

## **Exposure :**

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Food/Water Security

**Food/Water Security:** Agricultural Productivity

## **Geographic Feature:**

resource focuses on specific type of geography

None or Unspecified

## **Geographic Location:**

resource focuses on specific location

Global or Unspecified

## **Health Impact:**

specification of health effect or disease related to climate change exposure

Malnutrition/Undernutrition

## **Intervention:**

strategy to prepare for or reduce the impact of climate change on health

A focus of content

## **Mitigation/Adaptation:**

mitigation or adaptation strategy is a focus of resource

Adaptation, Mitigation

**Population of Concern:** A focus of content

## **Population of Concern:**

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status, Workers

## **Resource Type:**

format or standard characteristic of resource

Policy/Opinion, Review

## **Timescale:**

time period studied

Time Scale Unspecified